by LAWRENCE BRIDGE

Inventory Condition in the Current Recovery

Stock Accumulation Continues, but at Modest Rate
Inventory Requirements Being Met at Lower Levels

BUSINESS investment in inventories, which contributed importantly to last spring's upturn in output, has added little to the sizable further advance in gross national product during the second half of 1961. Stock accumulation has continued, accompanying the expansion of business sales to new highs, but the seasonally adjusted volume of such investment has been little changed. A continuation of this pattern is suggested by the survey of manufacturers' anticipations conducted late last year which found that inventory additions in the initial quarter of 1962 are expected to equal those in the last two quarters of 1961.

The rise in manufacturing and trade inventories in the final quarter of 1961 was about equal to the seasonally adjusted annual rate of $4½ billion in the third quarter (see chart). While inventory rebuilding was less in the spring quarter, the large shift from last winter's disinvestment (at a $4 billion annual rate) played a major role in the increased flow of orders and production.

Table 1.—Manufacturing and Trade Inventories: Current Condition Relative to Sales and Unfilled Orders

	Stock-sales ratios			Condition of Manufacturers Inventories [1] (Percent of inventories so classified)					
				1957–61 average		Sept. 30, 1958		Sept. 30, 1961	
	1947–61 Average	November 1958	November 1961	"High"	"Low"	"High"	"Low"	"High"	"Low"
Manufacturing, total	1.82	1.79	1.71	26	3	24	4	12	2
Durables	2.16	2.10	2.01	20	4	20	6	13	2
Primary metals	2.06	1.92	2.16	[2] 23	[2] 2	22	0	9	1
Fabricated metals	1.93	1.80	1.76	43	4	37	7	30	2
Electrical machinery	2.06	1.96	1.93	28	1	18	8	14	(*)
Nonelectrical machinery	2.44	2.51	2.09	40	3	44	8	11	5
Motor vehicles	1.50	1.41	1.39	26	1	13	1	8	(*)
Other transportation equipment	3.36	3.37	2.90	20	(*)	21	1	3	(*)
Stone, clay and glass	1.85	1.83	1.80	27	3	22	5	24	(*)
Nondurables	1.49	1.51	1.41	21	3	20	3	10	2
Food and beverages	1.07	1.06	1.09	11	4	14	1	4	5
Textiles	2.29	2.23	2.14	35	1	44	2	14	(*)
Paper	1.51	1.32	1.37	33	2	27	3	22	(*)
Chemicals	1.84	1.85	1.46	24	4	17	3	17	1
Petroleum	1.12	1.18	1.05	21	4	26	16	12	(*)
Rubber	2.23	2.17	2.05						
Retail trade, total	1.44	1.40	1.40						
Durables	1.96	1.90	1.85						
Automotive	1.41	1.32	1.26						
Furniture, household appliances	2.18	2.14	2.14						
Lumber, building materials, hardware	2.60	2.56	2.53						
Nondurables	1.18	1.16	1.19						
Apparel	2.87	2.86	2.88						
Food	.69	.70	.73						
General merchandise	2.13	2.10	1.94						
Wholesale trade, total	1.07	1.01	1.02						
Durables	1.54	1.40	1.53						
Nondurables	.81	.79	.70						

1. Based on percentage distribution of inventories classified by manufacturers as "high," "low" or "about right" relative to sales and unfilled orders position.
2. Excludes strike-affected quarters of 1959.
*Less than one-half of one percent.

Source: U.S. Department of Commerce, Office of Business Economics.

A feature of 1961 developments was the coincidental timing of stock accumulation and the recovery in GNP final demand; as a result of its unusually prompt turnaround in the second quarter of last year inventory investment thus far in the current expansion has been higher relative to the rise in GNP than in the initial recovery periods of earlier postwar recoveries. The ratio of stocks held by all business firms to GNP at the end of 1961, however, was lower than its postwar average, and quite close to those in the final quarter of 1958, and in the opening quarters of 1950 and 1955, all periods when recoveries had been under way for about 9 months.

As can be seen in the chart, the first quarter 1961 liquidation was concentrated among retail automotive dealers and the durable goods manufacturing industries. Subsequently durable goods manufacturers have been rebuilding inventories, while stocks of durables at trade establishments showed only minor fluctuations around the reduced spring levels. Producers and distributors of nondurable goods, however, have tended to increase stock holdings throughout 1961.

Factors moderating stock investment

The apparently cautious inventory policy being followed by business stems from several factors including both temporary and longer run influences. Most importantly, the economy has been operating well below capacity in recent years and, except during periods affected by industrial strikes, virtually all goods have been in ample supply.

Prices have reflected this situation and have been relatively stable for finished goods and semifinished components, while for basic materials, where competitive conditions are even more intense, they have remained on the average persistently below the level in the late 1940's, except for the Korean period.

In addition, businessmen have become more conscious of inventory carrying costs particularly in view of declining profit margins and high cost of borrowing. Given the above developments, management has not felt any urgency in inventory buying beyond immediate requirements for production and distribution, and even these requirements have apparently been met at minimum levels.

Some special factors should also be noted. In the key automobile industry, production was tightly scheduled in line with retail deliveries throughout 1961. After the initial reduction last winter and early spring, stocks have been held in the 700,000 to 800,000 car range—a low level by recent experience, as the constantly enlarging number of models and consumer choice available has operated to require higher stocks. If these stocks are rebuilt to the volume maintained through most of 1960 and the first quarter of last year, the result would be a sizable—though short-run—addition to inventories.

The coming wage negotiations in steel may have an unsettling impact on this year's inventory movements reminiscent of the 1959–60 experience. Sizable stocking of steel during the first half of 1962 would likely reduce second half demand regardless of the outcome of the wage talks.

Inventory Condition: Three Tests

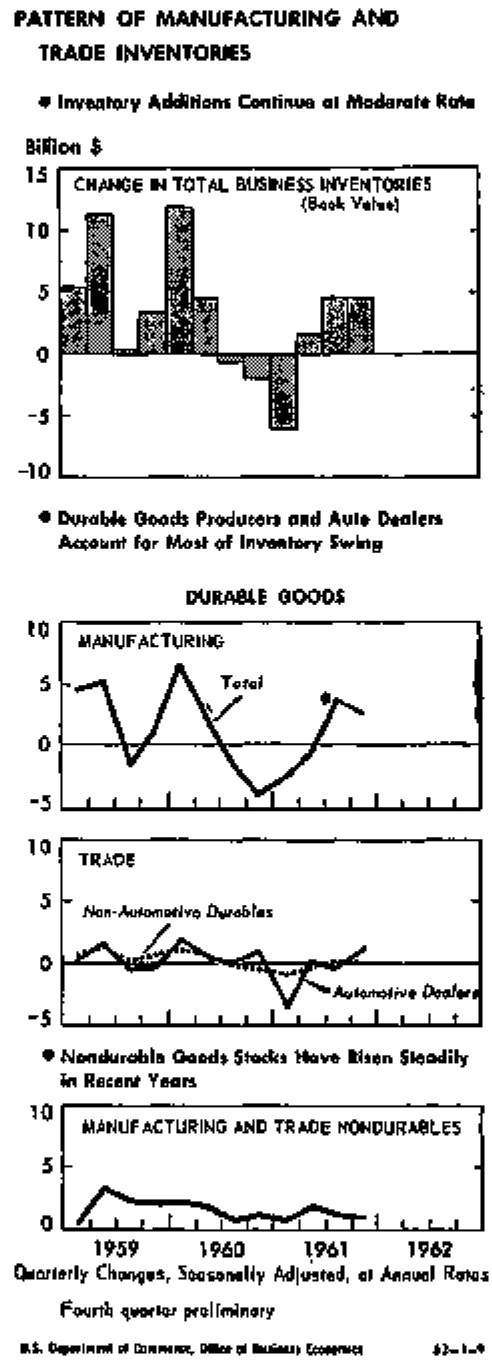
The primary requirement in an evaluation of the adequacy of inventory held by an industry or a firm at any particular point of time is an appraisal of both the current and prospective level of sales or output. Such a derived judgment will be tempered by additional factors such as the availability of materials, price expectations, and financing costs.

This section will attempt to appraise the current position of manufacturing stocks using three procedures. These procedures are different in perspective, although all rely on the levels and changes in sales and, in some cases, unfilled orders. For major manufacturing industries comparisons will be made (1) between current and past stock-sales ratios, (2) between actual values of inventories and "expected" values based on correlation techniques and (3) rising information available from OBE's survey of sales and inventory expectations on how manufactures view their inventory condition "in relation to their sales and unfilled orders position." The first two tests will also be used in forming a judgment on the current position of trade stocks.

Some qualifications should be noted in using these data. First, stock-sales ratios show large cyclical fluctuations, and generally vary inversely with sales movements: comparisons to be valid must be made between periods in similar stages of the cycle. At the current stage of the recovery—i.e., prior to its maturity—the ratios should be, and are, well below those of last winter when sales in most industries and trades were at cyclical lows.

Secondly, it has been found that manufacturers only infrequently classify their inventory holdings as "low"—a notable exception occurred during the 1959 steel strike—but instead a comfortable majority usually categorize them as "about right," and most of the remainder find them "high."[1] The appraisal of inventory condition is therefore based primarily on comparisons of current and past proportions classified as "high."

Comparisons of the reported inventory conditions and stock-sales ratios in recent periods are shown in table 1. The book values of inventories held by producers of electrical machinery, nonelectrical machinery, fabricated metal products, transportation equipment, textiles, petroleum products, and chemicals in late 1961 are found to be on the low side by these



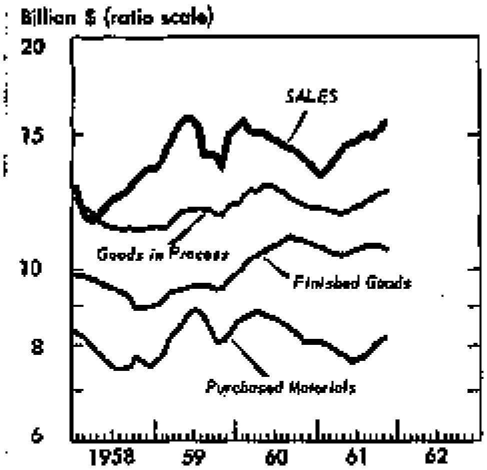
measures, as well as by their postwar relationships to sales. Stone, clay, and glass stocks appear to be somewhat high according to the correlations and the companies' evaluations, while the stock-sales ratio is little different from 1958.

1. This is more fully discussed in the August 1961 SURVEY, page 20.

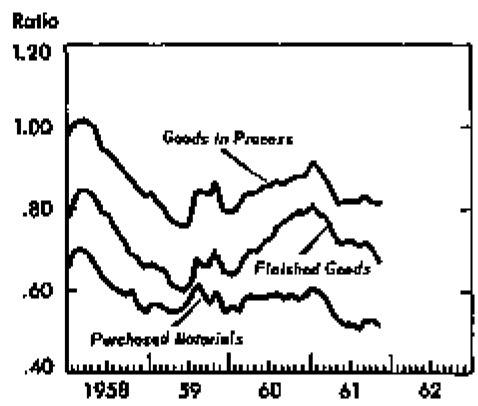
Both the correlations and the stock-sales ratios show primary metals stocks to be high, although this finding is apparently not supported by the manufacturers' own views. In this instance it may very well be that producers are not disturbed by the apparent heaviness in stocks relative to sales in view of such factors as the coming steel wage negotiations and the greatly improved prospects in the auto market

DURABLE GOODS MANUFACTURERS

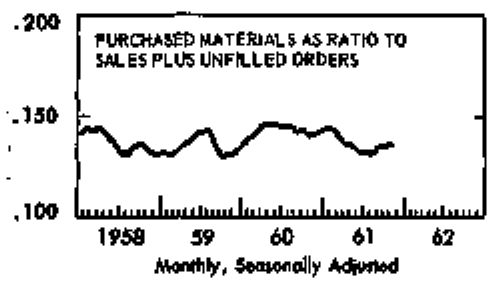
• Inventory Accumulation Widespread as Sales Recover . . .



• but Stock-Sales Ratios in 1961 Decline Reflecting Typical Cyclical Lag



• Part of Low Level of Purchased Materials Stock Apparently Reflects Lack of Growth in Backlogs



Monthly, Seasonally Adjusted

U.S. Department of Commerce, Office of Business Economics 62-1-4

which is the primary consumer of this industry's products.

The 1961 fall shutdowns in autos affect the "calculated" value of stocks based on the regression with lagged sales. After a rough allowance for sales lost due to the strikes, motor vehicle companies' stocks at the end of November were about in line with expectations from the postwar relationship; their stock-sales ratio was about the same as in the fall of 1958, although higher than in similar stages of the 1950 and 1955 recoveries. Stocks of food and beverage companies were also about in line with past ratios and relationships to sales. Manufacturers of motor vehicles and food viewed their September 1961 inventories more favorably than in other recent periods.

The correlations implied that stocks held at durable and nondurable goods retailers in November were about in line with expected values. This holds for the lumber-building materials-hardware and food groups; these findings are generally supported by the stock-sales ratios. On the other hand, the measures indicated that stocks at general merchandise and furniture-appliance stores were somewhat low as they entered the Christmas shopping season.

Apparel stocks appeared to be a little on the high side when appraised by the correlation, but about right according to the stock-sales ratio measure. The correlation also found automotive dealers' stocks to be somewhat higher than suggested by their average postwar relationship to lagged sales. This result is highly questionable, however, since the introduction of many new brands of cars in recent years has raised inventory requirements considerably above the earlier postwar experience.

Summing up, the correlations, the stock-sales ratios and manufacturers' reports all suggest that most industries are currently operating on a relatively low volume of inventory. In only a few areas do stocks appear high in historical perspective. Focusing on the aggregates, the durable and nondurable goods groups in manufacturing and wholesaling all appear to be operating on rather conservative stock levels.

In retail trade, both major groups appear to be about in line with sales, although the durable goods' stock-sales ratio is low. This apparent inconsistency reflects the striking increase in durable goods sales this fall, which affects the up-to-date ratios but is not adequately handled in the lagged-sales correlations. If November-December sales are introduced into the correlations, there is a suggestion that the aggregate current level of inventories will have to be raised to support a continuation of such a volume of sales.

Accumulation in Manufacturers' Stocks Underway

The 1960 business downturn was evident earlier in manufacturing than in most other sectors: Total manufacturing sales and orders peaked as early as February 1960; manufacturers' inventories peaked 4 months later. Sales and orders turned up in February of 1961 and the decline in inventories was halted only one month later, on a seasonally adjusted basis, although accumulation did not really begin until July.

The 1960 decline in inventories and the 1961 rise were entirely confined to the durable goods sector of the economy, as can be seen in the first chart. Nondurable goods inventories remained virtually unchanged during this entire period, a not surprising result given the stability in soft goods demand. Nondurable sales declined only 3 percent from April of 1960 to the low point in January 1961, and then rose gradually to achieve record highs last fall.

In contrast, durable goods inventories, which reached a cyclical peak in June of 1960, declined by $2 billion before the spring of 1961 and have since risen a somewhat smaller amount. Durable goods sales declined one-sixth from February 1960 to February 1961, and regained most of the loss in the succeeding months of last year, with virtually all major industries participating in the advance.

Primary metals lead rise

Primary metals producers began to increase their stocks during the second quarter of 1961, at a time when most of the metal-using industries which they supply were still cutting inventory.

There is some indication that upturns in primary metals stocks generally precede those in inventories held by metal products fabricators. While such a lead would be expected before and after strikes in the metal-supplying industries, they also have occurred in the last three cyclical recoveries.

Stocks held by steel and nonferrous metals companies have risen slowly since last spring, not quite matching the substantial rise in sales. In steel, the stock increase has evidently been larger in finished goods: the proportion of finished steel shipments to the production of steel has been running behind year-ago relationships since last April, suggesting a buildup of supplies at the mill.

New orders for primary metals rose steadily from February 1961 through August, leveled off in the early fall and, according to preliminary indications, resumed their rise. The flow of new business is currently above year-ago rates but by no means equal to the record orders received in early 1959.

A major contributor to the increase in manufacturers' inventories in 1961 was the motor vehicle and parts industry. Stocks of these companies rose in the second quarter while liquidation of durables was still general; they also accounted for one-third of the rise in total durable goods inventories in the third quarter, although by this time increases were prevalent.

The patterns of inventory changes in the fabricated metal industry and in electrical and nonelectrical machinery have been quite similar: liquidations starting in mid-1960 and lasting through mid-1961 followed by rebuilding in the last half of 1961. The stock increases have been moderate compared to the advances in sales, and even more so relative to new orders receipts. The sales and new orders gains have been larger for machinery companies than for fabricated metals producers.

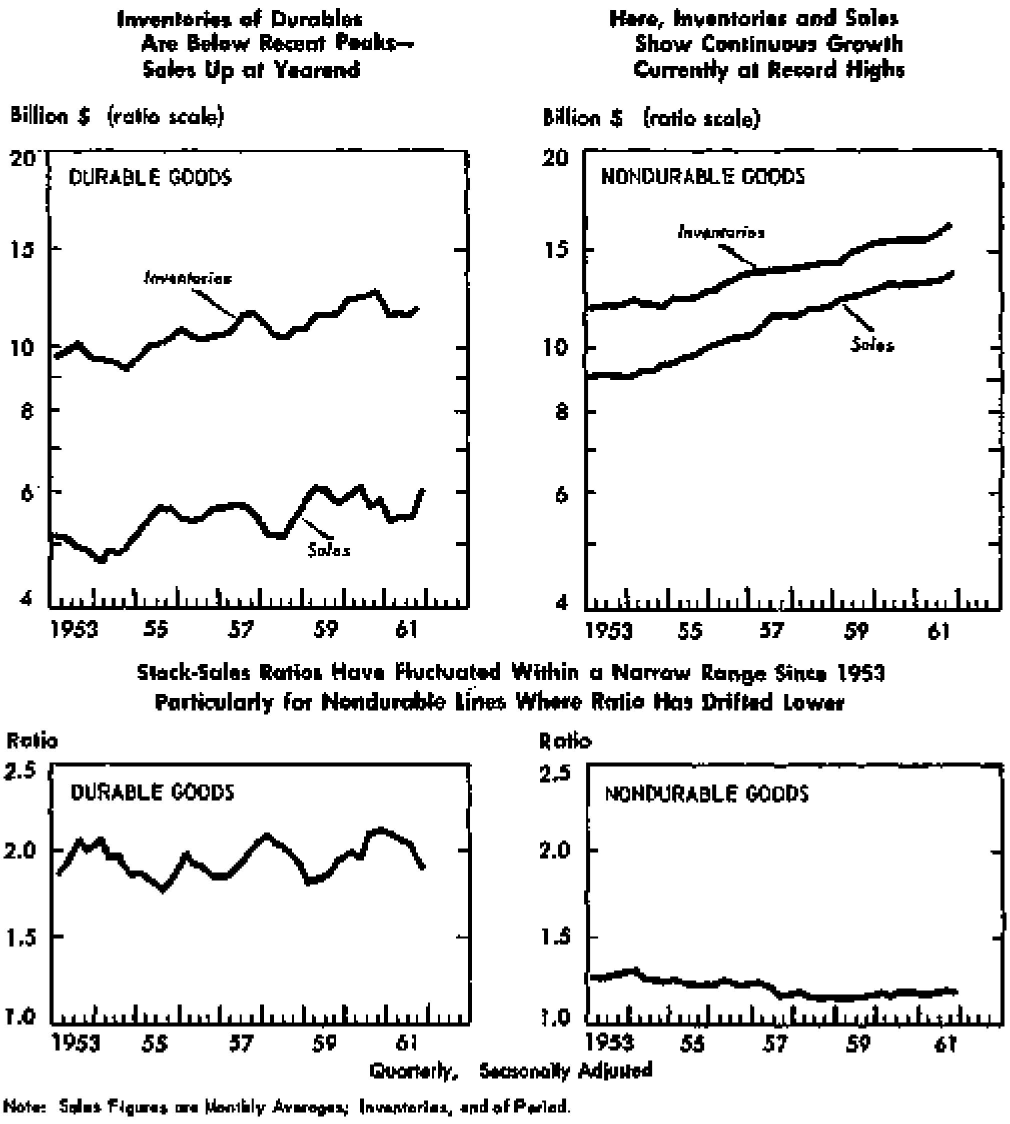
Differential trends by stage of fabrication

Some insight into recent inventory movements is afforded by the available data on stocks by stage of fabrication (see chart). It may be noted that the holdings of finished goods, purchased materials and goods-in-process stocks have historically fluctuated in the same general pattern as total stocks, but with important variations in timing and in amplitude of change. Goods-in-process, being most closely linked to output, responds earliest to cyclical turns, except on a few occasions when purchased materials stocks responded concurrently: finished goods invariably show the longest lag. The latter, being least subject to management control and quite sensitive to unexpected sales changes, are frequently an indication of imbalances with demand.

During the postwar period, stocks of purchased materials have declined, while finished goods have tended to rise, relative to total inventories and to sales. Goods-in-process stocks have maintained a rather constant ratio to total stocks except during the Korean period when the proportion was substantially raised by the inclusion of a large volume of defense material.

In the final quarter of 1960 and the opening quarter of 1961, durable goods manufacturers were reducing stocks at all stages of fabrication, while soft goods producers' holdings were showing only minor fluctuations. The upturn in durable goods output and shipments in the second quarter was accompanied, typically, by a further liquidation of purchased materials, although this was offset by an unusually prompt response in finished goods and in-process stocks. As can be seen in the chart, all categories of stocks rose in the second half of 1961.

RETAIL STORES



Note: Sales Figures are Monthly Averages; Inventories, end of Period.

U.S. Department of Commerce, Office of Business Economics 62-1-10

The increase in purchased materials stocks last fall was concentrated in the steel-using industries: motor vehicles, fabricated metals and nonelectrical machinery—a development that may continue in the current half year due to the coming wage talks in steel. Primary metals companies, on the other hand, while reducing purchased materials, have accounted for most of the moderate rise in finished goods holdings, and have also been prominent in the increase in goods-in-process. Accumulation of stocks in this latter category has been widespread among the industries reflecting the broad advance in output last year.

The second panel of the second chart presents the stocks movements relative to sales. It is clear that purchased materials stocks seem to be continuing their downward drift relative to sales. Here, a given level of output is being supported by smaller stocks than at almost any time in the past. The ready availability of supplies, rapid communications and transportation facilities, and increasing efficiencies in materials handling have apparently been effectively utilized to reduce materials requirements and costs.

An additional feature in this situation is that the backlogs of unfilled orders are currently little different from 1958 and well below their levels in 1957, 1959 and the first half of 1960, while durable goods sales have returned to record rates. Purchased materials stocks do not appear quite so low when taken as ratios to sales plus unfilled orders, as can be see in the third panel of the chart.

Goods-in-process stocks currently appear to be about in line with past postwar recoveries. For finished goods stock-sales ratios in November 1961, while below a year earlier, are somewhat higher than at similar cyclical positions in 1958 and 1955 in the durable goods industries, and about the same in nondurable goods.

Examination of commodity data available in physical units finds that factory stock-sales ratios for such consumer products as television sets, refrigerators, freezers, washers and driers, and ranges in the latter months of 1961 were, like the book value aggregates, below a year earlier but, except for television sets, higher than in the fall of 1958. This was also true of lumber and cement held at the mills—finished goods for these producers. Among other basic materials held at supplying plants, aluminum and lead stocks are higher relative to sales than in other recent years, while copper, pulpwood, and man-made fibres appear somewhat low. Current stock-sales ratios for meats, gasoline, synthetic rubber, and superphosphate fertilizer are not much different from the fall periods of 1958 and 1960.

Trends in Retail Inventories

The recently revised estimates of inventories held at retail stores (described in the December 1961 SURVEY) are shown in the chart, along with the comparable sales data. Book values have grown at a compound rate of 4 percent a year since 1948; the growth in physical volume terms has been 3 percent, after allowing for the 1 percent per annum increase in consumer goods prices over this period.

Movements in retailers' inventories have closely paralleled sales activity, typically after a short lag, since the mid-1950's. As can be seen in the lower panels of the chart the stock-sales ratios have held within narrow bands since 1955, although the cyclical fluctuations among the durables are apparent.

There has, however, been a tendency in the more recent period for retailers—especially in the nondurable goods lines—to hold a lower complement of goods relative to the volume of sales. Some of the factors in this downward drift have been discussed earlier. Additionally, however, at this level of distribution some of the inventory-carrying burden can in some cases be passed back to the producer and wholesaler—although presumably at the risk of losing some immediate sales.

Recent movements

Accompanying the advance in retail sales after the 1958 recession, retail stocks moved upwards until November 1960. The rise was relatively the same as the increase in sales from trough to peak, with both cyclical points preceding those in stocks. In the 1960–61 recession, declines in sales and stocks were of short duration, and confined primarily to durable goods. Stocks of such merchandise fell about one-tenth between November 1960 and April 1961, seasonally adjusted.

With sales maintained on a plateau between May and September—before resuming their advance—the total stock accumulation between March and Octo-

(Continued on p. 13)

Table 2.—Business Sales and Inventories

[Seasonally adjusted in billions of dollars]

	Sales (monthly average)					Inventories (end of month)		
	1960	1961				Nov. 1960	Mar. 1961	Nov. 1961
	IV	I	II	III	IV [1]			
Manufacturing and trade	59.85	59.38	62.29	61.91	64.20	94.65	92.76	95.04
All manufacturing	29.33	29.08	30.60	31.33	32.20	54.01	53.31	54.98
Durables	13.84	13.40	14.47	14.94	15.65	31.07	30.30	31.56
Primary metals	2.73	1.79	3.05	2.21	2.20	4.52	4.47	4.73
Fabricated metals	1.56	1.57	1.68	1.73	1.80	3.10	2.98	3.18
Machinery	4.69	4.67	4.83	4.85	5.15	10.35	10.25	10.43
Transportation and equipment	3.38	2.87	3.28	3.34	3.65	7.02	6.90	7.18
Nondurables	15.49	15.68	16.13	16.38	16.55	22.93	23.01	23.42
Wholesale trade	12.25	12.40	12.67	12.46	13.09	13.28	13.38	13.31
Durables	4.37	4.22	4.36	4.27	4.44	6.86	6.88	6.77
Nondurables	7.88	8.18	8.32	8.19	8.65	6.42	6.50	6.54
Retail trade	18.27	17.90	19.02	18.12	18.91	27.36	26.07	26.75
Durables	5.83	5.42	6.42	5.53	6.03	12.52	11.35	11.44
Automotive dealers	3.21	2.83	3.60	3.00	3.40	5.48	4.37	4.68
Nondurables	12.46	12.48	12.60	12.58	12.88	14.85	14.72	15.32

1. Manufacturing and wholesale trade based on October and November data.

Source: U.S. Department of Commerce, Office of Business Economics.

and durable goods production. As a consequence, steel output has tended to lag relative to changes in overall production. However, the current expansion in durable goods and construction demand should result in an improvement in steel output this year both in absolute terms and relative to GNP. Over the longer term, competition from substitute materials and from foreign sources of steel may be expected to intensify, so that the key factors affecting steel demand will be the behavior of durable goods and construction.

This article suggests that by the mid-fifties, the ratio of durable goods and construction had regained, over a period of more than two decades, its long run position relative to GNP. A long term improvement in the ratio of output of such goods to GNP (as well as any factors tending to increase the overall growth rate of the economy, of course) would be favorable for the steel industry's market prospects.

Inventory Condition

(Continued from p. 8)

ber 1961 was less than $½ billion, mostly in nondurables, (see chart). November, however, saw a $300 million rise in inventories.

Auto stocks volatile, other durables stable

Retail inventory movements continued to reflect largely fluctuations in the auto market which are rapidly manifested in the automotive dealers' stocks (see first chart). From a low in August 1958, such stocks rose about 50 percent before reaching a peak in November 1960. The steady growth in the number of new automobiles held by dealers was influenced in large part by the introduction of compacts into the automobile market, a factor which subsequently about doubled the number of car brands offered for sale. The number of new cars in stock rose from around 550,000 in the summer of 1958 to a million in late 1960. With the cyclical decline in sales in the latter months of 1960 stocks held by dealers rose to a high of close to 2 months' supply.

In early 1961 manufacturers trimmed production to bring shipments more nearly in line with demand. Before leveling off in April, dealers' inventories declined more than one-fifth, and then, as noted earlier, held at about 800,000 new cars, seasonally adjusted, through the end of last year. The leveling of stocks was in part related to the automobile strikes that limited production in September and October, while the sharp rise in sales of automobiles in the final quarter of 1961 about matched the rising flow of cars from the factory. The stock-sales ratio declined to 1.6 in December, down about one-fifth from the previous high.

Sales, and consequently, inventory movements at furniture and appliance stores and at lumber, building materials, and hardware dealers in recent years have shown a close association with residential construction activity. From 1959 to 1960 housing outlays declined about one-tenth; beginning late in the first quarter of 1961 the rate of residential construction improved. Sales of furniture and appliances fell off somewhat shortly after housing expenditures peaked in mid-1959 and exhibited weakness throughout 1960. There has been a moderate pick up since the first quarter of 1961. Inventories at these establishments had risen slowly beginning early in 1959 to reach a high of $2 billion in mid-1960. A rapid decline, however, that began in September 1960 brought the book value of inventories down and by April 1961 it was back to that of early 1959. In the past 6 months the inventory holdings in these stores have been quite stable.

Sales by lumber-building materials-hardware dealers had been drifting slowly downward since 1958. Inventories rose slightly between 1959 and 1960 so that the stock-sales ratio rose in the second half of 1960 to a rate averaging about 2.6, a figure not much different from that in the mid-1950's. While sales have been improving since May 1961, inventories were reduced further, lowering the stock-sales ratio to about 2.5.

Nondurables—slow growth

The book value of inventories at most nondurable goods stores is generally at record rates, as are sales. As can be seen in the chart, changes in stocks have tended to almost match sales so that the stock position has slowly slipped from about 1.3 to 1.2 months of sales since the pre-Korean period.

Inventories at food stores, because of the perishable nature of many of the products carried, have a very rapid turnover. This factor tends to hold down the overall stock-sales ratio for all nondurables; the ratios for apparel and general merchandise stores are higher than the average for all durable goods stores. It is interesting to note that despite the fact that many food stores have been increasing their diversification into such nonfood lines as apparel, appliances, books and phonograph records—goods with a considerably slower turnover than food products—the stock-sales ratio has remained relatively stable at 0.7.

Apparel and general merchandise stocks

Apparel stocks had increased from mid-1958 through the end of 1960 to a high of $3.4 billion. There was some decline early in 1961 but thereafter the rise was resumed and by November book values were back to the previous high. Sales, which had shown little buoyancy for two years, strengthened in recent months to reach record rates in the final quarter of 1961. The current stock-sales ratio at apparel stores at 2.9 months has shown no significant trend in the last few years, although it is lower than in the 1955 recovery.

General merchandise sales too showed no appreciable growth in the recent period until the second half of this year. Average sales in the final quarter of last year, seasonally adjusted, rose about 7 percent above the first quarter, with December setting a new high.

Stocks at these establishments, as at apparel stores, rose to a high in the summer of 1960 and then, after a brief period of curtailment, rose once more to new highs by the fall of 1961. The stock position in recent years has been fairly stable at about 2 months of sales. Department store stocks this fall have been slightly higher relative to sales than in the comparable periods in 1958 and 1960.